

WHAT IS CLAIMED IS:

1. A graphics processor comprising:

a shading processing section which subjects pixel data to a shading process;

5 a first path which permits map data and texture data output from a video memory to be input to the shading processing section;

10 a second path which permits pixel data output from the shading processing section to be output to the video memory; and

15 a third path which permits pixel data output from a pixel expanding section to be input to the shading processing section and permits pixel data output from the video memory to be input to the shading processing section instead of the above pixel data.

2. The graphics processor according to claim 1, further comprising a write address calculating section which calculates a write address of pixel data output from the shading processing section with respect to the video memory according to write address calculation information.

25 3. The graphics processor according to claim 2, wherein the write address calculation information contains information corresponding to a pixel expanding system.

4. The graphics processor according to claim 2, wherein the write address calculation information

contains information which indicates a position of an environment map.

5. The graphics processor according to claim 2,
wherein the write address calculation information
contains information which indicates the depth of a
pixel.

10. The graphics processor according to claim 2,
wherein the write address calculation information is
attached to an output of the shading processing
section.

7. The graphics processor according to claim 6,
wherein the write address calculation information
contains information corresponding to a pixel expanding
system.

15. The graphics processor according to claim 6,
wherein the write address calculation information
contains information which indicates a position of an environment map.

20. The graphics processor according to claim 6,
wherein the write address calculation information
contains information which indicates the depth of a
pixel.

25. A graphics processor comprising:
a shading processing section which subjects pixel
data to a shading process;
a first path which permits map data and texture
data output from a video memory to be input to the

shading processing section;

a second path which permits pixel data output from the shading processing section to be output to the video memory; and

5 a write address calculating section which calculates a write address of pixel data output from the shading processing section with respect to the video memory according to write address calculation information.

10 11. The graphics processor according to claim 10, wherein the write address calculation information contains information corresponding to a pixel expanding system.

15 12. The graphics processor according to claim 10, wherein the write address calculation information contains information which indicates a position of an environment map.

20 13. The graphics processor according to claim 10, wherein the write address calculation information contains information which indicates the depth of a pixel.

25 14. The graphics processor according to claim 10, wherein the write address calculation information is attached to an output of the shading processing section.

15. The graphics processor according to claim 14, wherein the write address calculation information

contains information corresponding to a pixel expanding system.

16. The graphics processor according to claim 14,
wherein the write address calculation information
5 contains information which indicates a position of an
environment map.

17. The graphics processor according to claim 14,
wherein the write address calculation information
contains information which indicates the depth of a
10 pixel.

18. A graphics card comprising:

a first connector which can be connected to an
electronic device;

15 a pixel expanding section which receives image
display data via the first connector and expands the
image display data into pixels to create pixel data;

a shading processing section which subjects the
pixel data to a shading process;

a video memory;

20 a first path which permits map data and texture
data output from the video memory to be input to the
shading processing section;

a second path which permits pixel data output from
the shading processing section to be output to the
25 video memory;

a third path which permits pixel data output from
the pixel expanding section to be input to the shading

processing section and permits pixel data output from the video memory to be input to the shading processing section instead of the above pixel data;

5 a D/A converter which converts a screen image output from the video memory into a video signal; and
 a second connector which can connect an output of the D/A converter to a display unit.

10 19. The graphics card according to claim 18,
 further comprising a write address calculating section which calculates a write address of pixel data output from the shading processing section with respect to the video memory according to write address calculation information.

15 20. The graphics card according to claim 19,
 wherein the write address calculation information contains information corresponding to a pixel expanding system.

20 21. The graphics card according to claim 19,
 wherein the write address calculation information contains information which indicates a position of an environment map.

25 22. The graphics card according to claim 19,
 wherein the write address calculation information contains information which indicates the depth of a pixel.

 23. The graphics card according to claim 19,
 wherein the write address calculation information is

attached to an output of the shading processing section.

24. The graphics card according to claim 23,
wherein the write address calculation information
5 contains information corresponding to a pixel expanding
system.

25. The graphics card according to claim 23,
wherein the write address calculation information
contains information which indicates a position of an
10 environment map.

26. The graphics card according to claim 23,
wherein the write address calculation information
contains information which indicates the depth of a
pixel.

15 27. A graphics card comprising:

a first connector which can be connected to an electronic device;

20 a pixel expanding section which receives image display data via the first connector and expands the image display data into pixels to create pixel data;

a shading processing section which subjects the pixel data to a shading process;

a video memory;

25 a first path which permits map data and texture data output from the video memory to be input to the shading processing section;

a second path which permits pixel data output from

the shading processing section to be output to the video memory;

5 a write address calculating section which calculates a write address of pixel data output from the shading processing section with respect to the video memory according to write address calculation information;

10 a D/A converter which converts a screen image output from the video memory into a video signal; and
10 a second connector which can connect an output of the D/A converter to a display unit.

15 28. The graphics card according to claim 27, wherein the write address calculation information contains information corresponding to a pixel expanding system.

20 29. The graphics card according to claim 27, wherein the write address calculation information contains information which indicates a position of an environment map.

20 30. The graphics card according to claim 27, wherein the write address calculation information contains information which indicates the depth of a pixel.

25 31. The graphics card according to claim 27, wherein the write address calculation information is attached to an output of the shading processing section.

32. The graphics card according to claim 31,
wherein the write address calculation information
contains information corresponding to a pixel expanding
system.

5 33. The graphics card according to claim 31,
wherein the write address calculation information
contains information which indicates a position of an
environment map.

10 34. The graphics card according to claim 31,
wherein the write address calculation information
contains information which indicates the depth of a
pixel.

15 35. A graphics processing system comprising:
 an interface bus which can be connected to a
peripheral device;
 a CPU;
 a bus bridge connected to the interface bus and
CPU;
 a pixel expanding section which receives image
20 display data via the bus bridge and expands the image
display data into pixels to create pixel data;
 a shading processing section which subjects the
pixel data to a shading process;
 a video memory;
25 a first path which permits map data and texture
data output from the video memory to be input to the
shading processing section;

a second path which permits pixel data output from the shading processing section to be output to the video memory;

5 a third path which permits pixel data output from the pixel expanding section to be input to the shading processing section and permits pixel data output from the video memory to be input to the shading processing section instead of the above pixel data; and

10 a D/A converter which converts pixel data output from the video memory into a video signal.

36. The graphics processing system according to claim 35, further comprising a write address calculating section which calculates a write address of pixel data output from the shading processing section with respect to the video memory according to write address calculation information.

15 37. The graphics processing system according to claim 36, wherein the write address calculation information contains information corresponding to a pixel expanding system.

20 38. The graphics processing system according to claim 36, wherein the write address calculation information contains information which indicates a position of an environment map.

25 39. The graphics processing system according to claim 36, wherein the write address calculation information contains information which indicates the

depth of a pixel.

40. The graphics processing system according to
claim 36, wherein the write address calculation
information is attached to an output of the shading
5 processing section.

41. The graphics processing system according to
claim 40, wherein the write address calculation
information contains information corresponding to a
pixel expanding system.

10 42. The graphics processing system according to
claim 40, wherein the write address calculation
information contains information which indicates a
position of an environment map.

15 43. The graphics processing system according to
claim 40, wherein the write address calculation
information contains information which indicates the
depth of a pixel.

20 44. A graphics processing system comprising:
an interface bus which can be connected to a
peripheral device;
25 a CPU;
a bus bridge connected to the interface bus and
CPU;
a pixel expanding section which receives image
display data via the bus bridge and expands the image
display data into pixels to create pixel data;
a shading processing section which subjects the

pixel data to a shading process;

a video memory;

a first path which permits map data and texture data output from the video memory to be input to the
5 shading processing section;

a second path which permits pixel data output from the shading processing section to be output to the video memory;

10 a write address calculating section which calculates a write address of pixel data output from the shading processing section with respect to the video memory according to write address calculation information; and

15 a D/A converter which converts pixel data output from the video memory into a video signal.

45. The graphics processing system according to claim 44, wherein the write address calculation information contains information corresponding to a pixel expanding system.

20 46. The graphics processing system according to claim 44, wherein the write address calculation information contains information which indicates a position of an environment map.

25 47. The graphics processing system according to claim 44, wherein the write address calculation information contains information which indicates the depth of a pixel.

48. The graphics processing system according to
claim 44, wherein the write address calculation
information is attached to an output of the shading
processing section.

5 49. The graphics processing system according to
claim 48, wherein the write address calculation
information contains information corresponding to a
pixel expanding system.

10 50. The graphics processing system according to
claim 48, wherein the write address calculation
information contains information which indicates a
position of an environment map.

15 51. The graphics processing system according to
claim 48, wherein the write address calculation
information contains information which indicates the
depth of a pixel.